

Scientists provide first evidence of diphtheria-like infectious agent in hedgehogs

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Credit: Juliane Seet

As cultural successors, hedgehogs reside in close proximity to humans. Close contacts, however, can bear risks for animals and humans. Road traffic, lawn mowers and infectious agents threaten the prickly insect

eaters. Some infectious agents can be transmitted to humans. Considerate treatment of wildlife and appropriate hygiene measures minimize the risk of infection. A recent study has identified *Corynebacterium ulcerans*—a close relative of the diphtheria causing bacterium—in hedgehogs. The study is published in *Emerging Microbes & Infections*.

Diphtheria is a bacterial disease of humans affecting the upper respiratory tract. The etiologic agent *Corynebacterium diphtheria* can harbor a specific diphtheria toxin gene. Diphtheria is very rare in countries with high immunization coverage such as Germany, although *C. diphtheria*-associated skin or wound infections have occurred more frequently in recent years among long-distance travelers.

Germany has recorded an increase of infections with *Corynebacterium ulcerans*, a close relative to *C. diphtheria* that often carries a diphtheria-like toxin gene and has now been found in hedgehogs. A bulletin published by the National Consiliary Laboratory for Diphtheria concluded that *C. ulcerans* occurs in a variety of animal species without or with disease symptoms such as lymph node abscesses, wound or respiratory infections.

"There are clear transmission events from infected pets to the owners of dogs and cats," say the initiators of the study Anja Berger and Andreas Sing. Corresponding case numbers are low, but the risk of animal-to-human transmission should raise public health awareness toward emerging *C. ulcerans* infections. The bacterium has already been detected in different native wildlife species such as red fox, [wild boar](#) and roe deer. This study provides the first evidence of diseased hedgehogs infected by *C. ulcerans*.

"The results should raise a greater awareness and responsibility for our neighborhood," says Kristin Mühldorfer, researcher at Leibniz-IZW's

Department of Wildlife Diseases. Wild [animals](#) can carry infectious agents and parasites relevant for [human](#) health. Likewise, [infectious agents](#) from humans and domestic animals can affect the health of [wild animals](#).

Considerate care and hygiene measures are mandatory to safely handle wild animals such as hedgehogs. This includes proper hand washing with soap and warm water or appropriate use of hand sanitizers after animal contacts. "People at higher risk working with wild animals should be aware – these include veterinarians, professionals and volunteers in wildlife rehabilitation and sanctuaries," state the authors. Adequate vaccination is essential for protection against [diphtheria](#) and should be refreshed regularly.

A respectful distance from [wildlife](#) enables cohabitation between humans and animals even in close proximity. Weak, sick or injured wild animals should only be handled and nursed by experienced people, who have animal specific knowledge and approval. Wildlife samples from animals showing signs of bacterial disease can be shipped on request to the participating federal state laboratories or the Leibniz-IZW for investigation. In addition, the German CL-Diphtheria would further characterize confirmed *Corynebacterium* isolates on request.

More information: Anja Berger et al. Tox-positive *Corynebacterium ulcerans* in hedgehogs, Germany, *Emerging Microbes & Infections* (2019). [DOI: 10.1080/22221751.2018.1562312](https://doi.org/10.1080/22221751.2018.1562312)

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